

# **OBD Scanner**

## **User's Manual**

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**Welcome!**  
**Thank you for buying MB-880 OBDII Diagnostic Scanner!**

The MB-880 OBDII Diagnostic Scanner allows you to access your OBDII vehicle's data. Vehicle data, which was only available to dealership technicians using expensive proprietary scan tools, is now available to every people who has a MB-880! MB-880 is the prime choice for users keen on DIY.

➤ Here is a list of MB-880's **Functions and Features**

- Scanners support **13 protocols** and you can use two modes to scan which includes **Auto scan** mode and **Manually scan** mode;
- MB-880 tool can support from model \$1 to model\$ 9;
- More than **70 vehicle manufacturer** built-in for you.
- DTCs include Generic (**P0, P2, P3, B0, U0 and C0**) & manufacturer specific (**P1, P3, B1,B2 ,U1 and C1,C2,**) codes.
- **80 percent trouble** codes have help information in scan tool.
- Scan tool has Black Mask OLED. You can read the content of scanner smoothly when in strong light.
- DTC definitions are written in user friendly words rather than obscure technical terms.

➤ MB-880's **Main Diagnostics menu**

- 
- ~ Read Diagnostic Trouble Codes (DTCs)
  - ~ Clear trouble codes
  - ~ View real-time vehicle operation data (Data stream)
  - ~ View Freeze Frame data
  - ~ View I/M readiness
  - ~ Read O2 Monitor Test data
  - ~ Read On-Board Mon. Test
  - ~ Component Test
  - ~ View the vehicle's information

The **MB-880** OBDII Diagnostic Scanner is the perfect scan tool to make you diagnose a problem more easily!

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# 1.Safety Precautions and Warnings

For your Health and Safety, please read this manual thoroughly before using your Scan Tool. **First**, you should read the safety precautions and warnings. Safety messages are provided to help prevent personal injury and equipment damage.

**If your scanner displays nothing, please check out whether the tool's SD card has been firmly inserted!**



- Do not drop or shock the scan tool.
- Overpressure can cause damage on liquid crystal display (LCD), and it can also provoke malfunction because of its own features.
- Do not connect or disconnect any test equipment with ignition on or engine running
- Operate the vehicle in a well-ventilated work area; exhaust gases are poisonous
- Users should not remodel or take the product apart by themselves.
- Do not use fuel injector cleaning solvents when performing diagnostic testing
- Do not place tools or test equipment on fenders or other places in engine compartment
- Use the scan tool only as described in the user's manual
- Follow service manual warnings when working around air

- 
- bag components or wiring
  - Do not leave a running engine unattended.
  - Keep code reader dry, clean and free from oil, water and grease. Use a mild detergent on a clean cloth to clean the outside of the tool.
  - Engine systems that malfunction can cause injury



➤ ***The safety precautions and warnings discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.***

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## **2. General Information**

### **2.1 About On-Board Diagnostics (OBD) II**

#### **What is OBD II?**

On-board diagnostics version II (OBD II) is a system that the Society of Automotive Engineers (SAE) developed to standardize automotive electronic diagnosis. Beginning in 1996, most new vehicles sold in the United States were fully OBD II compliant.

The OBD II system is designed to monitor emission control systems and key engine components by performing either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase of “Check Engine” or “Service Engine Soon”. The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable information:

- 1) Whether the Malfunction Indicator Light (MIL) is commanded ON or OFF;**
- 2) Which, if any, Diagnostic Trouble Codes (DTCs) are stored;**
- 3) Readiness Monitor status.**

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## Does My Car Have OBD-II?

All cars and light trucks built and sold in the United States after January 1, 1996 were required to be OBD II equipped. In general, this means all 1996 model year cars and light trucks are compliant, even if built in late 1995.

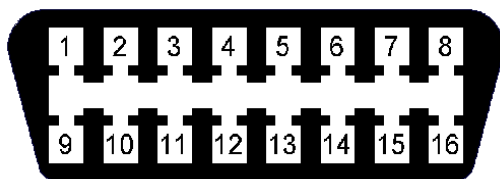
Two factors will show if your vehicle is definitely OBD II equipped:

- 1) There will be an OBD II connector.**
- 2) There will be a note on a sticker or nameplate under the hood: "OBD II compliant".**

## 2.2 Data Link Connector (DLC)

### What is DLC?

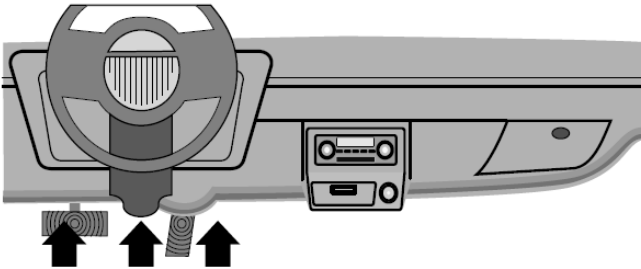
The data link connector (DLC) allows the Scan Tool to communicate with the vehicle's computer(s). Before OBD II, manufacturers used different DLC's to communicate with the vehicle. Use the proper DLC adapter cable to connect the Scan Tool to the vehicle. Also, the vehicle's DLC may be found in several different places and have many different configurations.



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## Where is the connector located?

The connector must be located within three feet of the driver and must not require any tools to be revealed. Look under the dash and behind ashtrays.

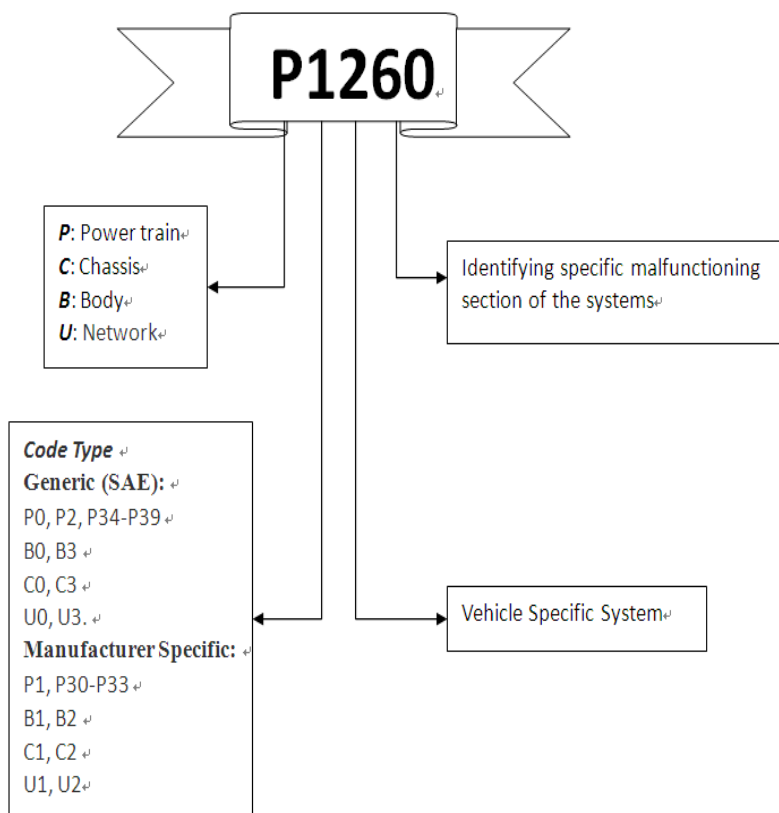


## 2.3 Diagnostic Trouble Codes (DTCs)

DTCs are codes that are stored by the on-board computer diagnostic system in response to a problem found in the vehicle. They are used to help determine the cause of a problem or problems with a vehicle. DTCs consist of a five-digit alphanumeric code such as P1260.

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## Example of Diagnostic Trouble Code



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## 3. About MB-880


### 3.1 Scan Tool Description





1. **LCD DISPLAY:** Indicates test results. Backlit, 128 x 64 pixel display with contrast adjustment.



2. **YES:** Press **YES** to confirm or enter the next menu. You can press **YES** to selected/ deselected items in the “**Customize data set**” of “**Data stream**” and “**Freeze frame**”. Hold **YES** to enter the selected items.




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3. : Cancels a selection from a menu or returns to the menu. It is also used to reset code to P0000 in the **DTC**

### **Lookup.**






4.  moves up or down through menu and submenu items. Hold up or down to read the previous/next page. If you keep holding  key it can change page automatically. When looking up DTC, it is used to change value of selected character and hold up or hold down to select the digit which needed to be changed.


5. : Press  to read the help information when “?” icon observed on the upper of the screen.

6. : Hold  to return to Main Menu and press  to return to Main Menu when looking up DTC.


## **3.2 Navigation Characters**

Characters used to help navigate the scan tool are:

1) “” -- Indicates current selection  
2) “/” -- If the current screen has more than one item you can choose, “/” will be displayed on the upper of the screen, it means that scroll up/down is available.

3) “?” -- It indicates help information is available. Press  button to view help information of the selected item.

4) “\$” -- Means the control module address from which the data is retrieved.

5) “xx/yy”--The number “yy” to the upper right corner of the screen indicates total number of items under this menu and “xx” means current sequence of cursor“”pointed. When the

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message information more than one screen, “yy” means total number of pages and “xx” is current page.

### **3.3 Scanner power**

The power of the scan tool is provided via the vehicle Data Link Connector (**DLC**). Just follow the steps below to turn on the scan tool:

- 1) Find DLC on vehicle.
- 2) Connect the scan tool and diagnostic connector with the cable supplied.

### **3.4 Suggestions for users**

- 1) Please do not use solvents such as alcohol to clean the keyboard or display.
- 2) Please use a mild nonabrasive detergent and a soft cotton cloth
- 3) A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the EOBD cable.

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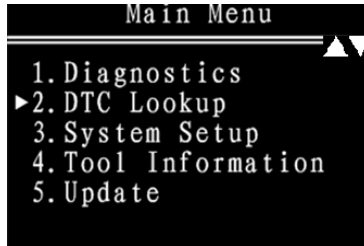
## 4. Using the Scan Tool

### 4.1 DTC Lookup

The **DTC Lookup** function is used to search for definitions of DTCs stored in the Scan Tool.

1).Enter DTC Lookup:

From the **Main Menu**, use ▲/▼ to select DTC Lookup and press **YES** to enter.

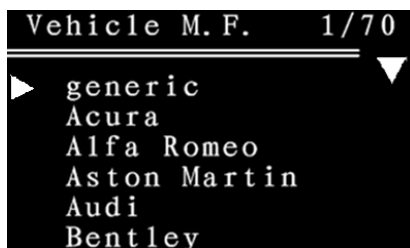


2).From **DTC Lookup** menu, hold ▲/▼ to move to the desired character, press ▲/▼ button to change selected character and press **YES** button to confirm. If you want to change the code to P0000, you can press **NO** key to clear the code.

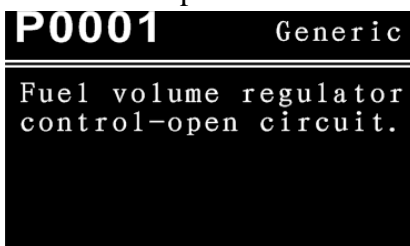


3) Before you read the DTC definition, you must select

the vehicle manufacturer, use the ▲/▼ scroll buttons to select the vehicle manufacturer and hold ▲/▼ to view previous or next screen. You can also keep holding ▲/▼ to automatically scroll up and down. Then press YES to view the DTC definition.




4) View the DTC definition on screen. When DTC definition covers more than one screen, press ▲/▼ key to view additional information on previous/next screens.



**✓ If the code you have selected does not have definition, scan tool will display “No definition found for this DTC. Please select proper model or refer to vehicle service manual”.**

**✓ Only one character can be changed at a time.**

5) Press  key to return to **Main Menu**.

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## 4.2 System Setup

The scanner allows you to make the following settings:

- Preference:** When the scanner is auto scanning, the scan tool will first try the default protocol which you have set. This will save your time from scanning each protocol every time you connect your device to your vehicle. And after you selected the default manufacturer, the cursor points to the default manufacturer unless you press ▲/▼ key to change.

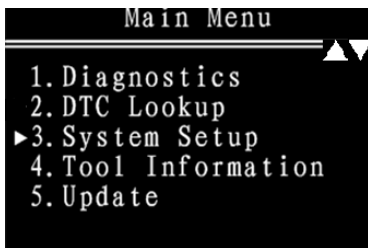
- Adjust Contrast:** Adjusts the contrast of the LCD display

- Unit of measure:** You can set the unit of measure to imperial or Metric.

- Self-test:** You can check the scanner's display and keyboard that if they are working normally.

To enter the **Setup** menu mode:

From **Main Menu** use ▲/▼ scroll to select **System Setup** :

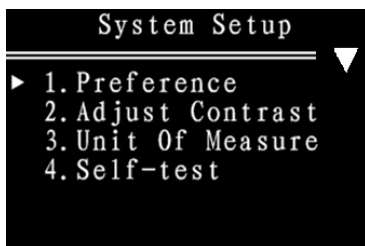


### ➤ Preference Setup

From **System Setup** menu use ▲/▼ scroll to select **Preference**, and press YES to enter.

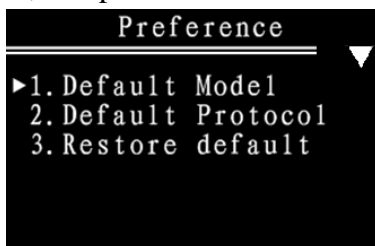
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You can make the manufacturer and protocol settings.

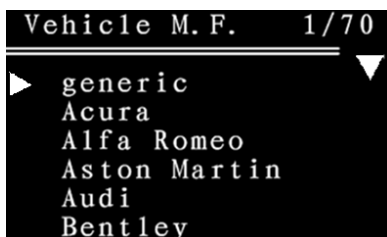


### A. Vehicle manufacturer setup

1) From Preference menu, use ▲/▼ scroll button to select **Default Model**, and press **YES** button.



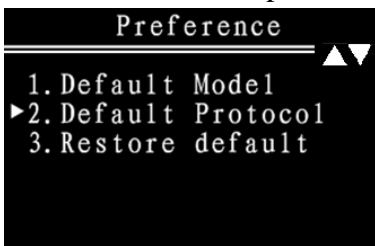
2) Use ▲/▼ scroll button to select the desired manufacturer and press **YES** button to save your selection. After you save your selection a message will tell you that **“The setting is in force.”**






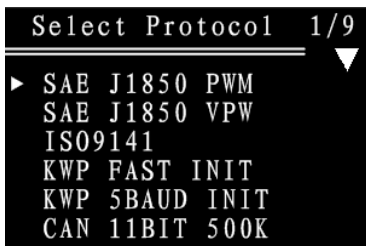
### B. Protocol setup

1) From Preference menu, use ▲/▼ scroll button


to select **Default Protocol**, and press  button.

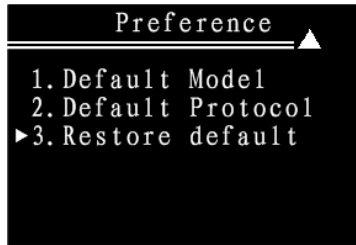


2) Use / scroll button to select the desired manufacturer and press  button to save your selection. After you save your selection a message will tell you that “The setting is in force.”






### C. Restore default

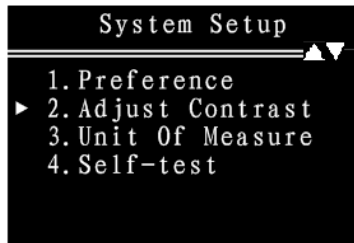
If you want to let the scan tool restore to factory setting, select **restore default** and press  button. This operation will reset **Default Model**, **Default Protocol**, **Adjust Contrast** and **Unit of measure to factory settings**. After you save your selection a message will tell you that “The setting is in force.”





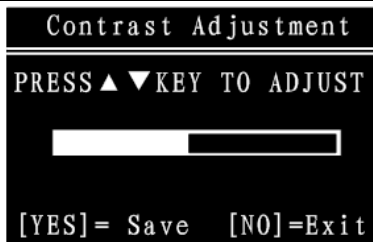
*✓ generic in the vehicle manufacturer and SAE J1850 PWM in the select protocol are the factory default settings. And Metric in the Unit of measure is the factory default settings.*

### ➤ Adjust Contrast

1) From **System Setup** menu use / scroll button to select **Adjust Contrast** and press  to enter.



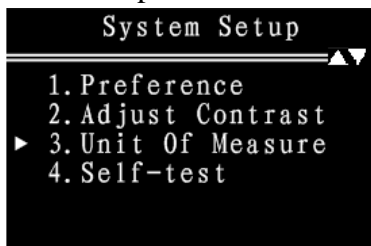
2) From **Adjust contrast** menu, use / button to increase or decrease contrast.





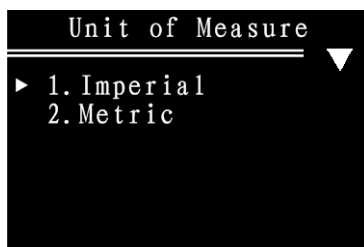
3) Press  to save your settings and press  to exit.


### ➤ Unit of measure

1) From **System Setup** menu use / to Select **Unit of Measure** and press  to enter.



2) From **Unit of Measure** menu, use / scroll button to select the desired unit of measurement. The **Unit of Measure** is used in **Data stream, Freeze Frame and On-Board Monitor Test**.



3) Press  to save your choice. After you save your

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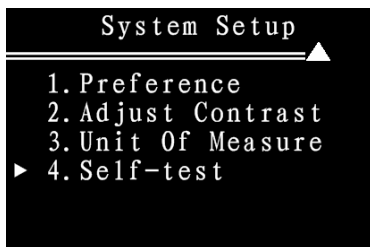
selection a message will tell you that “**The setting is in force.**”

✓ *Metric is the factory default settings.*

### ➤ Self-test

The Tool **self-test** function checks if the display and keyboard are working properly.

From **System Setup** menu, use ▲/▼ scroll button to select **Self-test**, and press **YES** to enter.



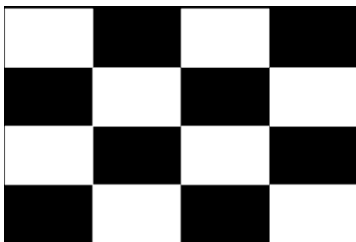
#### A. Display Test

1) Select **Display Test** from **Device Self-Test** menu and press **YES** button to start display Test.



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2) Please pay attention to the LCD. Look for Missing Spots.



3) You can **press any key** to exit the test. **Hold any key** also can exit the test.

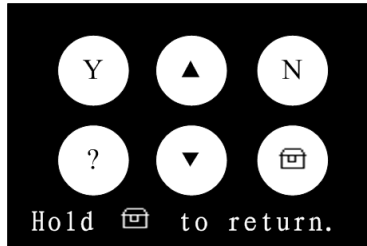
### **B. Keyboard Test**

The **Keyboard Test** is used to verify keys are working correctly

1) Select **Keyboard Test** from **Device Self-Test** menu and press  button to start display Test



2) In this test you can press any key to check the keyboard. When you press a key, the corresponding icon will twinkle. If the corresponding icon does not twinkle, then the key is not functioning properly.

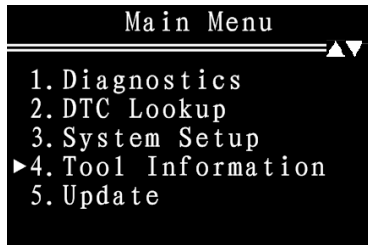


- 3) Hold to return.

## 4.3 Tool Information

The Tool Information function allows viewing of some important information such as serial number and software version number of the scanner.

- 1) From **Main menu**, use / scroll button to select Tool Information and press to view.



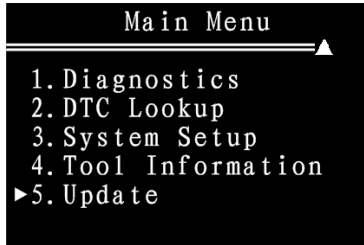
- 2) View tool information on screen.  
3) Press key to return..

## 4.4 Update

You can update your scan tool from our web.

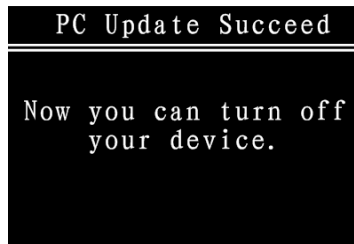
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1) From **Main menu**, use ▲/▼ scroll button to select Update and press **YES** to start.



2) Before scanner update, a message will display. It can tell you something about update. And then press **YES** to start linking PC. If you press **NO** during linking, update is cancel. Press **NO** key to return.

3) If update succeed. A message will display to tell you that “Update Succeed! Now you can turn off your device”




4) If update failed, another message will tell you “Linking Error!” Then scanner will tell you something about the reasons.

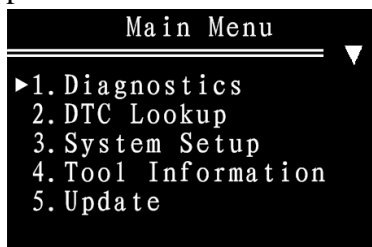
### Linking Error!

1. Improper port settings
2. Unstable cable connection
3. The device is not authorized.

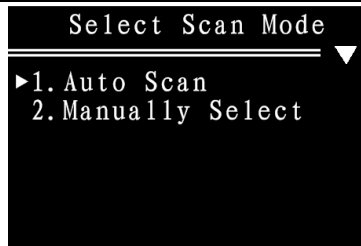
## 5. OBD II Diagnostics

✓ *The picture of the menu in the user manual is for demonstration purpose only. In most case, the content of the menu may be different from vehicle to vehicle, or even different on the same vehicle when perform the test at different time.*

From **Main menu**, use ▲/▼ scroll button to select **Diagnostics** and press  to view.




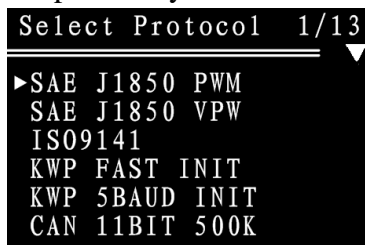
Before scan protocol, you should select a scan mode. The **MB-880** scan tool has two scan modes which are **Auto Scan** and **Manually Select**.



➤ **Auto scan** mode: A sequence of messages displaying the OBD II protocols will be observed on the screen .When the scan tool links to the vehicle, the communication protocol is automatically detected, and is used until another vehicle is diagnosed.

| Scanning Protocol |            |     |  |
|-------------------|------------|-----|--|
| SAE J1850         | PWM        | ×   |  |
| SAE J1850         | VPW        | ×   |  |
| ISO9141           |            | ×   |  |
| KWP               | FAST INIT  | ×   |  |
| KWP               | 5BAUD INIT | ×   |  |
| CAN               | 11BIT 500k | ... |  |

➤ **Manually Select** mode: You can use ▲/▼ to select a protocol and press . The scan tool will links to the vehicle with the protocol you have selected.





If the scan tool fails to communicate with the vehicle's ECU (Engine control Unit), A “**Link Error!**” message shows up on the display. You must make sure the following things:

- ❑ *The vehicle is OBD compliant.*
- ❑ *Turn the key ON with engine OFF.*
- ❑ *DLC is firmly connected.*
- ❑ *The integrity of diagnostic wiring harness.*

**✓ Don't connect or disconnect any test equipment with ignition or engine running.**

If the summary of system status (MIL status, Code found, Monitors N/A, Monitors Ready, Monitors Not Ready) show up on the screen, it means link succeed.

| State Emission     |     |
|--------------------|-----|
| MIL Status         | OFF |
| Code Found         | 5   |
| Monitors N/A       | 5   |
| Monitors Ready     | 6   |
| Monitors Not Ready | 0   |

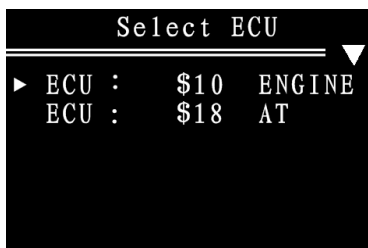
Press  to enter Diagnostic menu and press  key to return the **Select Scan Mode**.

**✓ The State Emission is displayed only if the vehicle supports PID \$01.**

When more than one vehicle control module is detected by the scan tool, you must select the module where the data may be retrieved. The most often to be selected are the

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## **ENGINE and AT.**






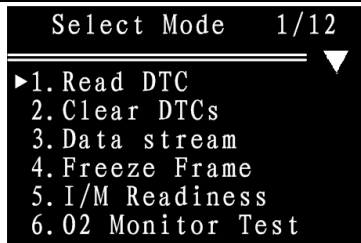
The Diagnostic menu includes the following modes:

- ▣ Read DTCs**
- ▣ Clear DTCs**
- ▣ Data stream**
- ▣ Freeze Frame**
- ▣ I/M Readiness**
- ▣ O2 Monitor Test**
- ▣ On-Board Mon. Test**
- ▣ Component Test**
- ▣ Vehicle Information**
- ▣ Modules Present**
- ▣ Unit of Measure**
- ▣ State Emission**

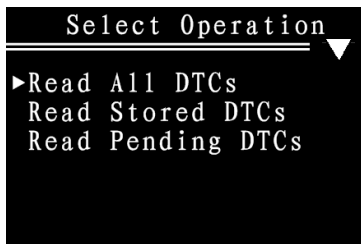
### **5.1Read DTCs**

You can read the trouble codes of your vehicle in this mode. It includes ***All DTCs, Stored DTCs and Pending DTCs.***

- 1) Use / scroll button to select **Read DTCs** from Diagnostic Menu and press  to enter.

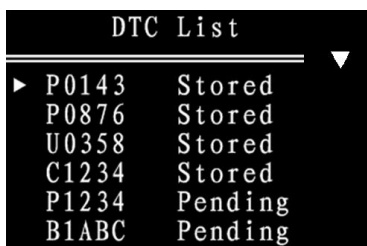


2) Use / to select **All DTCs, Stored DTCs or Pending DTCs** from **Select Operation**. Press to enter.








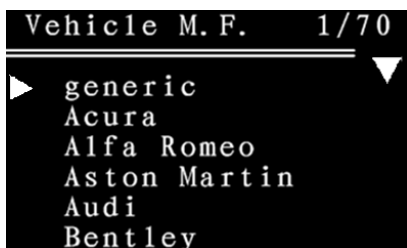
3) .View DTC List


After selected one item in the **Select Operation** you will enter the **DTC List**.

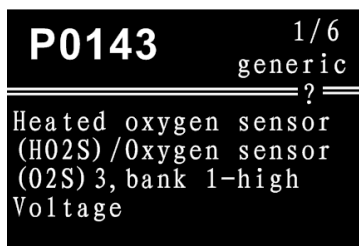







4) View DTCs and their definitions on screen

You must select vehicle manufacturer before you view the definition of the DTC. Press  to confirm. If the manufacturer for your vehicle is not listed, use / to select **Other** and press  button. Press  key to return.




After press  in the **vehicle manufacturer** list the definition of the DTC will display on the screen. The vehicle manufacturer is displayed to the upper right corner of the screen.



In this screen, you can hold / to view previous/next trouble code's definition. When DTC' definition covers more than one screen, "// to view additional information on previous/next screens.

5) View the help information

If an “?” icon display on the upper of the screen, it indicates the code you selected has help information. You can press “?” button to view the help information of this DTC. Press “?” again or press  to return.

| P0143                                               | Probable Cause |
|-----------------------------------------------------|----------------|
| Exhaust leak, wiring short to earth, H02S, 02S, ECM |                |




✓ *If there are no Diagnostic Trouble Codes present, the message will tell you “NO emission-related DTC found”*

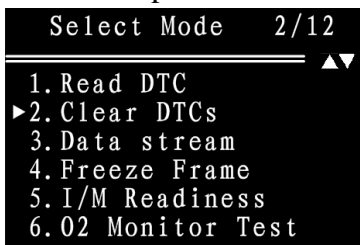
✓ *If more than one DTC is found, hold / button to view the definition of other DTCs.*

## 5.2 Clear DTCs

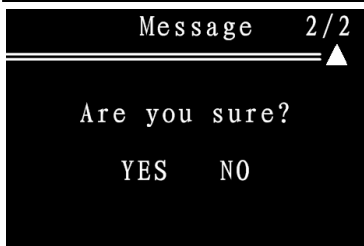
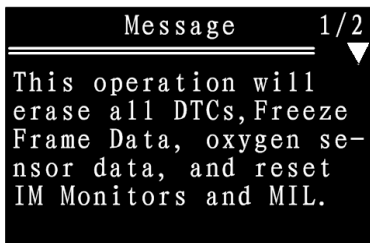
✓ *Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also “Freeze Frame” data and “Oxygen sensor” data. Further, the I/M Readiness Monitor Status for all vehicle monitors is reset to Not Ready or Not Complete status. It also resets MIL status.*

✓ *If you want to clear the DTCs, you must turn key ON with engine OFF.*


1) Use / scroll button to select **Clear DTCs** from diagnostics menu and press  button.

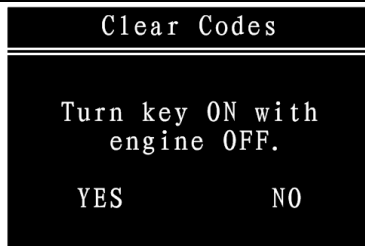




2) A warning message comes up asking for your confirmation.



If you do not want to clear DTCs, press  key to exit.

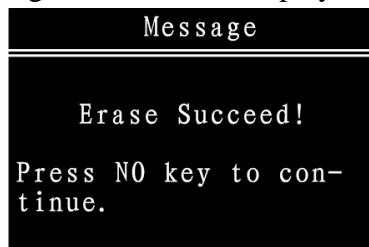
3) If you want to clear the DTCs, press  and then another message comes up asking for your second selection.



Press  to continue and press  to return the diagnostics menu.



4) The clearing result is “**Erase Succeed!**” or “**Erase Failed!**”


A) If the codes are cleared successfully, an “**Erase Succeed!**” message shows on the display.



B) If the codes are not cleared, then an “**Erase Failed!**” message appears.



5) Press  or  to return diagnostic menu.

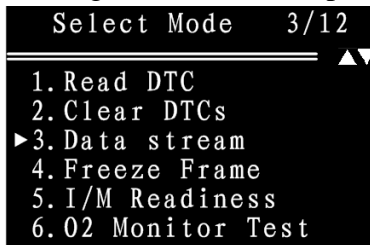
✓ If you press , the cursor “▶” will point to “Read DTCs” to read codes again.

✓ If you press **NO**, the cursor “▶” will point to “Clear DTCs”.

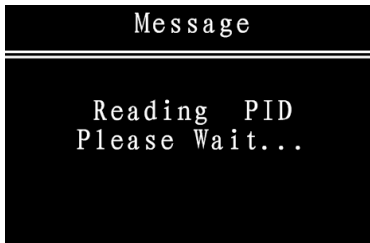
## 5.3 Data stream

This mode function allows viewing of live or real time data of vehicle’s computer module(s). **Data stream** list shows all supported PID data for the vehicle being tested.

- 1) To view live data, use **▲/▼** button to select **Data stream** from diagnostic Menu and press **YES** to enter.



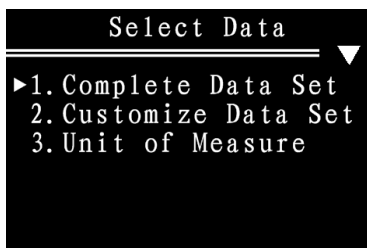
- 2) Please wait a moment while the scan tool reading PID.




- 3) The **Data stream** list includes “**Complete Data Set**”, “**Customize Data Set**” and “**Unit of Measure**”.

- A) To view **Complete Data Set**, use **▲/▼** button to select **Complete Data Set** from “**Select Data**” menu


and press  to enter.



View live PIDs on the screen. If the retrieved information covers more than one screen, use  button, as necessary, until all data have been shown up.

| Data Stream | 1 / 161 |
|-------------|---------|
|             | ? ▼     |
| ▶LOAD_PCT   | 2. 0%   |
| ECT         | -35 °C  |
| SHRTFT1     | -96. 1% |
| SHRTFT3     | -71. 1% |
| LONGFT1     | -96. 1% |
| LONGFT3     | -71. 1% |

✓ *The number of “xx/yy” to the right of the screen indicates total number of items under Data stream list and current sequence of cursor “▶” pointed.*

If an “?” icon display on the upper of the screen, it indicates the live data item you selected have help information. You can press “” button to view the help information of this data. The help information will show the full name of live data you selected.

---



LOAD\_PCT

Calculated LOAD Value

Press “?” again or press **NO** key to return.

✧ If it is not support, a message will display.

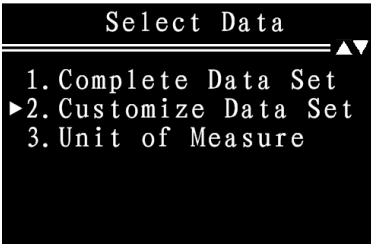


Message

This mode is not supported by the vehicle.

### B) View Customize Data

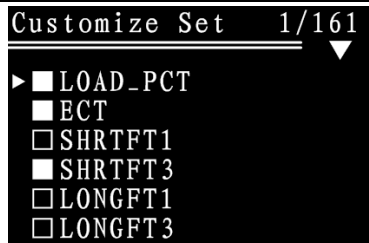
To view **customize data**, use **▲/▼** button to select **Customize Data Set** from **Select Data** and press **YES** to enter.



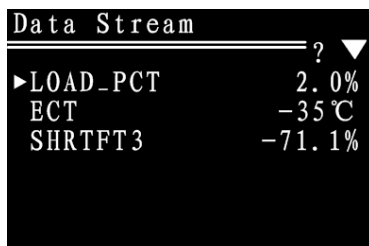
Select Data ▲▼




1. Complete Data Set  
▶ 2. Customize Data Set  
3. Unit of Measure

After you enter the customize set, you can press **YES** to select/deselect data, and press **▲/▼** to move up/down list. Selected parameters are marked with solid squares.



Then **hold**  to confirm and read data you have selected.



✓ If you hold  before you select item, a message will tell you that “You should select at least one item.” Then press  or  key to return .

Press  key to return.




C) Unit of Measure: Repeat procedures from **System Setup** to setup the unit of Measure.

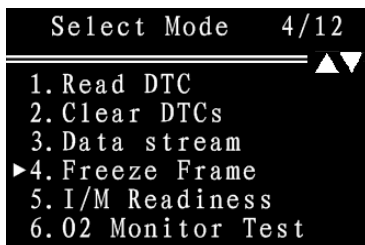
## 5.4 Freeze Frame

When an emission-related fault occurs, certain vehicle conditions are recorded by the on-board computer. This information is referred to as freeze frame data. View Freeze Data is a snapshot of the operating conditions at the time of an

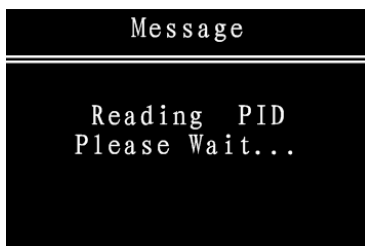
---

emission-related fault.

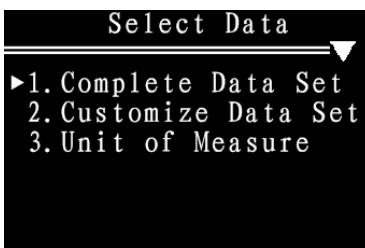
- 1) To view Freeze Frame, use / button to select **Freeze Frame** from diagnostic Menu and press  to enter.



- 2) Please wait a moment while the scan tool reading PID.



- 3) The **Data stream** list includes “**Complete Data Set**”, “**Customize Data Set**” and “**Unit of Measure**”



- A) To view **Complete Data Set**, use / button to select **Complete Data Set** from “**Select Data**” menu and press  to enter.

|              |        |
|--------------|--------|
| Freeze Frame | 3/152  |
|              | ? ▲▼   |
| LOAD_PCT     | 14.5%  |
| ECT          | -3°C   |
| ▶SHRTFT1     | -71.1% |
| SHRTFT3      | 28.9%  |
| LONGFT1      | -71.1% |
| LONGFT3      | 28.9%  |

If an “?” icon display on the upper of the screen, it indicates the live data item you selected have help information. You can press “?” button to view the help information of this data. The help information will show the full name of live data you selected.

|                                 |
|---------------------------------|
| SHRTFT1                         |
| Short Term Fuel Trim-<br>Bank 1 |

Press ? again or NO key to return.

B) **Customize Data Set and Unit of Measure** are the same to the **Data stream**.

✓ *If there is no freeze frame data available, an advisory message “There is no Freeze Frame or this mode is not supported by the vehicle”.*

Press NO button to return to diagnostic Menu.

---

## 5.5 I/M Readiness

The **I/M Readiness** (Inspection / Maintenance) function is used to view a snapshot of the operations for the emission system on OBD II vehicles. It is an excellent function. To guarantee no fault exist make sure all monitors are OK or N/A and no DTC's exist.

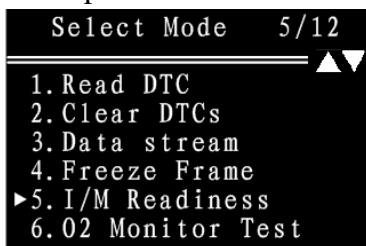
During normal driving conditions, the vehicle's computer scans the emission system. After a specific amount of drive time (each monitor has specific driving conditions and time required), the computer's monitors decide if the vehicles emission system is working correctly or not as well as detecting out of range values. When the monitor's status is:

- **Ready**-- Indicates that a particular monitor being checked has completed its diagnostic testing.

- **Not Ready** -- Indicates that a particular monitor being checked has not completed its diagnostic testing.

- **N/A (Not Applicable)** -- Vehicle does not support that monitor.

- 1) Use ▲/▼ button to select **I/M Readiness** from diagnostics menu and press .






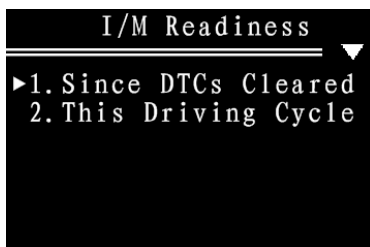
---

Our scan tool support two types of **I/M Readiness** tests:

● **Since DTC Cleared**--indicates status of the monitors since the DTC's are erased


● **This Driving Cycle**--indicates status of monitors since the beginning of the current drive cycle

Use / to select **Since DTCs Cleared** or **This Driving Cycle**. If the vehicle supports both types of tests, then both types will be shown on the screen for selection Press  to enter.



If enter **Since DTCs Cleared** or **This Driving Cycle**. You can view the information of the emission system on OBD II vehicles.

| Since Cleared | 1/11  |
|---------------|-------|
| ▼             | ?     |
| ►CAT          | Ready |
| HCATL         | N/A   |
| EVAP          | Ready |
| AIR           | N/A   |
| ACRF          | N/A   |
| 02S           | Ready |


If there is an “?” icon on the upper of the screen, it means you can press “” button to view the full name .

---

CAT

Catalyst monitoring

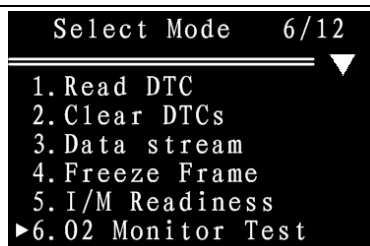
✓ *Sometimes it maybe only support one item or do not support at all.*

Press  to return to diagnostic menu.


## 5.6 O2 Monitor Test

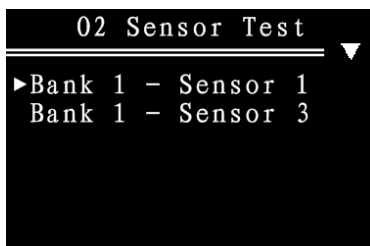
OBD II regulations require applicable vehicles monitor and test oxygen (O2) sensors to determine problems related to fuel and emissions. The O2 Monitor Test allows retrieval of completed O2 sensors monitor test results. These tests are not on-demand tests and they are done automatically when engine operating conditions are within specified limits. These test results are saved in the on-board computer's memory.

- 1) Use  button to select **O2 Monitor Test** from diagnostic menu and press  button.

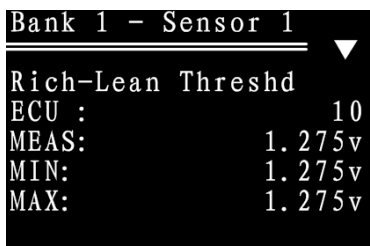



A) If your vehicle communicates is *not use* controller area network (CAN):

Use ▲/▼ button to select item from **02 Sensor Test** menu and press  to enter to view information.





View test results of selected O2 sensor.

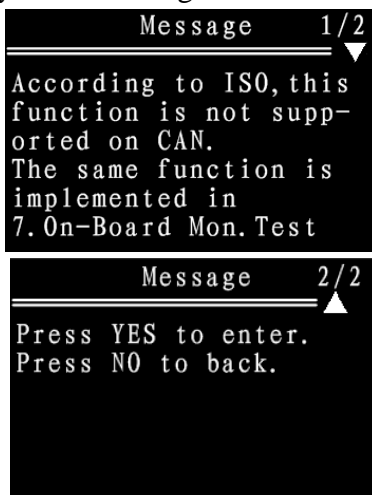


Use ▲/▼ button to view more screens of data if “▲/▼” icon displays. Press  key to return.

✓ *If the vehicle does not support the mode, an advisory message will be displayed on the screen.*

B) If the vehicle communicates *using* a controller

area network (CAN), O2 monitor tests are not supported by vehicle. A message displayed on the screen will tell you “According to ISO, this function is not supported on CAN. The same function is implemented in 7.On-Board Mon. Test for CAN bus”. It means for O2 Monitor Test results of CAN-equipped vehicle, see chapter “On-Board Mon. Test”. So you can press  to enter **On-Board Mon. Test** or press  key to return diagnostic menu.



## 5.7 On-Board Mon. Test

The **On-Board Mon. Test** function is useful after servicing or after erasing a vehicle's memory. Test results do not necessarily indicate a faulty component or system.

- **Non-CAN vehicles** **On-Board Mon. Test** receives test results for emission-related powertrain components

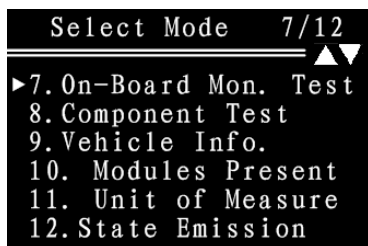
---

and systems that are **not continuously monitored**.

- CAN vehicles ***On-Board Mon. Test*** receives test results for emission-related powertrain components and systems that **are and are not continuously monitored**.

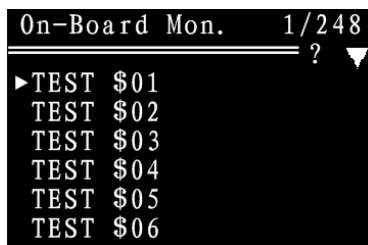
1) Use ▲/▼ to selected ***On-Board Mon. Test*** from diagnostic menu and press  to enter.

2)



3) From ***On-Board Mon. Test*** menu, use ▲/▼ to select a test to view and press .

✧ If it is ***not a CAN-vehicle***, test selections will be as below:



Press  to view the information.

|               |       |
|---------------|-------|
| Test ID: \$01 |       |
| ECU :         | 10    |
| CID :         | 7F    |
| MEAS:         | 65535 |
| MIN :         | 65535 |
| MAX :         | ----  |
| TEST:         | OK    |

Press “?” key to view help information of the item you selected.

|                                                  |
|--------------------------------------------------|
| TEST \$01                                        |
| Rich to lean sensor threshold voltage (constant) |

✧ For CAN-vehicles, test selections will be as below:

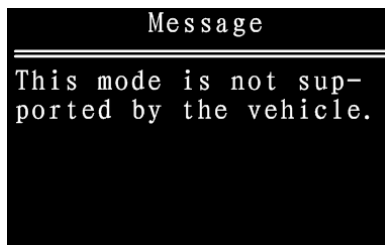
|                     |       |
|---------------------|-------|
| On-Board Mon.       | 1/248 |
| ▼                   |       |
| ►02 Bank 1-Sensor 1 |       |
| 02 Bank 1-Sensor 2  |       |
| 02 Bank 1-Sensor 3  |       |
| 02 Bank 1-Sensor 4  |       |
| 02 Bank 2-Sensor 1  |       |
| 02 Bank 2-Sensor 2  |       |


Press YES to view the information:

|                    |       |
|--------------------|-------|
| 02 Bank 1-Sensor 1 |       |
| ▼                  |       |
| Rich-Lean Threshd  |       |
| MEAS:              | 65535 |
| MIN:               | 65281 |
| MAX:               | 257   |
| TEST:              | FAIL  |

---

✧ If the vehicle under test does not support the mode, a message will tell you “This mode is not supported by the vehicle”.

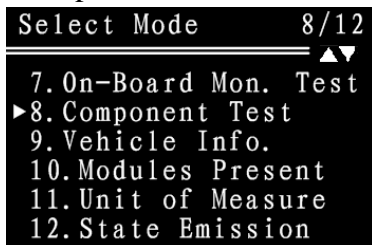


Press  to return to the previous menus.

## 5.8 Component Test

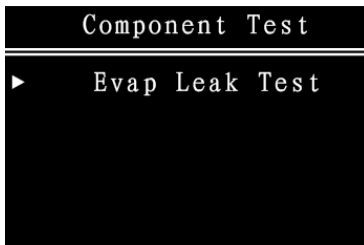
The Component Test function allows initiating a leak test for the vehicle's EVAP system. The scan tool itself does not perform the leak test, but commands the vehicle's on-board computer to start the test. Different vehicle manufacturers might have different criteria and methods for stopping the test once it has been started. Before starting the component test, refer to the vehicle service manual for instructions to stop the test.

1) Use  to selected **Component Test** from diagnostic menu and press  to enter.



---

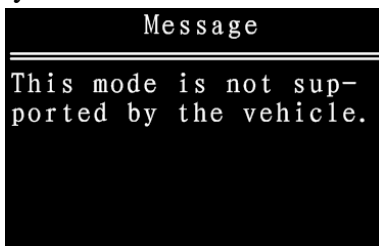
2) From Component Test menu, use ▲/▼ button to select the test to be initiated.



3) If the command has been sent, a message will be displayed on the screen.



✧ Some vehicles do not allow tools to control vehicle systems or components. If the vehicle does not support the EVAP Leak Test, a message will tell you “This mode is not supported by the vehicle”.



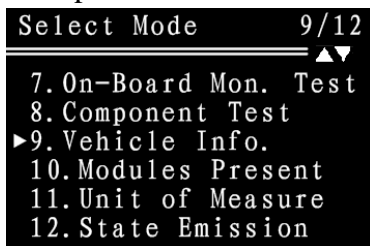
Press YES or NO key return to the previous menu.


---

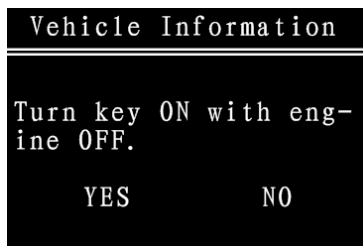
## 5.9 Vehicle Info.



The **Vehicle Info.** function allows the Scan Tool to request the vehicle's VIN number, calibration ID(s) which identifies software version in vehicle control module(s), calibration verification numbers (CVN(s)) and in-use performance tracking.




- 1) Use / to selected **Vehicle Info.** from diagnostic menu and press  to enter.

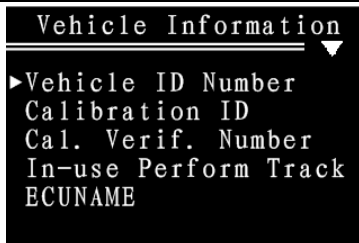


- 2) There is a message comes up to remind you. You must make a choice  or NO.



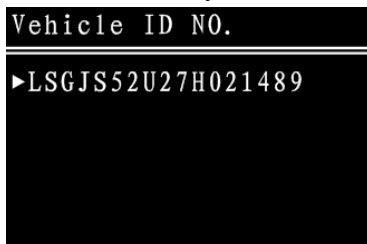
Select  key, you will enter the Vehicle information list, press  key return to diagnostic menu.

Use / to select an item from **Vehicle Info.** to view and press  to enter.



✧ If the vehicle does not support this mode, a message will tell you “**This mode is not supported by the vehicle**”.

3) View the information you have selected.





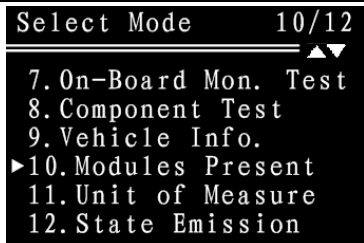
4) Press  key to return.



✓ *The operation to retrieve vehicle information may take as long as several minutes on some vehicles.*

## 5.10 Modules Present

The Scan Tool identifies the module IDs and communication type for OBD II modules in the vehicle



1) Use / to select **Modules Present** from diagnostic menu.

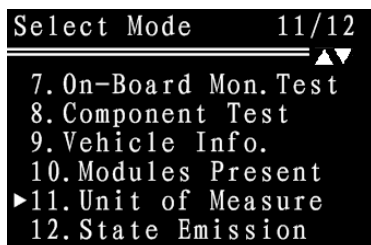


- 2) Press  to view the modules present and press  key to exit.

| Modules Present |      |         |
|-----------------|------|---------|
| ECU01:          | \$10 | KWP2000 |
| ECU02:          | \$18 | KWP2000 |






## 5.11 Unit of Measure

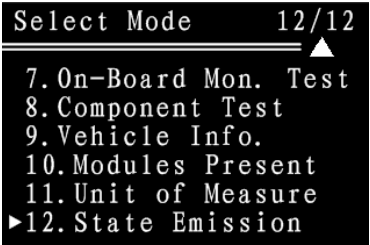
- 1) Use / to select **Unit of Measure** from diagnostic menu.



The **Unit of Measure** setting is the same to the **Data stream**.

## 5.12 State Emission

In this section, you can view the system status (MIL status, Code counts, Monitor status) again. Select **State Emission** from diagnostic menu. Use / to select **State Emission** from diagnostic menu. Press  to view and press  or  to return.



## 6.Appendix

### Appendix 1-PID List

|   | PID<br>Abbreviation | Full Name                         |
|---|---------------------|-----------------------------------|
| 1 | DTC_CNT             | Number of DTCs stored in this ECU |
| 2 | DTCFRZF             | DTC that caused required freeze   |

|    |            |                                                |
|----|------------|------------------------------------------------|
|    |            | frame data storage                             |
| 3  | FUELSYS1   | Fuel system 1 status:                          |
| 4  | FUELSYS2   | Fuel system 2 status:                          |
| 5  | LOAD_PCT   | Calculated LOAD Value                          |
| 6  | ECT        | Engine Coolant Temperature                     |
| 7  | SHRTFT1    | Short Term Fuel Trim - Bank 1                  |
| 8  | SHRTFT3    | Short Term Fuel Trim - Bank 3                  |
| 9  | LONGFT1    | Long Term Fuel Trim - Bank 1                   |
| 10 | LONGFT3    | Long Term Fuel Trim - Bank 3                   |
| 11 | SHRTFT2    | Short Term Fuel Trim - Bank 2                  |
| 12 | SHRTFT4    | Short Term Fuel Trim - Bank 4                  |
| 13 | LONGFT2    | Long Term Fuel Trim - Bank 2                   |
| 14 | LONGFT4    | Long Term Fuel Trim - Bank 4                   |
| 15 | FRP        | Fuel Rail Pressure (gauge)                     |
| 16 | MAP        | Intake Manifold Absolute Pressure              |
| 17 | RPM        | Engine RPM                                     |
| 18 | VSS        | Vehicle Speed Sensor                           |
| 19 | SPARKADV   | Ignition Timing Advance for No.1 Cylinder      |
| 20 | IAT        | Intake Air Temperature                         |
| 21 | MAF        | Air Flow Rate from Mass Air Flow Sensor        |
| 22 | TP         | Absolute Throttle Position                     |
| 23 | AIR_STAT   | Commanded Secondary Air Status                 |
| 24 | O2SB1S1    | Oxygen Sensor Output Voltage Bank 1 - Sensor 1 |
| 25 | SHRTFTB1S1 | Short Term Fuel Trim Bank 1 - Sensor 1         |

|    |            |                                                   |
|----|------------|---------------------------------------------------|
| 26 | O2SB1S2    | Oxygen Sensor Output Voltage<br>Bank 1 - Sensor 2 |
| 27 | SHRTFTB1S2 | Short Term Fuel Trim Bank 1 -<br>Sensor 2         |
| 28 | O2SB1S3    | Oxygen Sensor Output Voltage<br>Bank 1 - Sensor3  |
| 29 | SHRTFTB1S3 | Short Term Fuel Trim Bank 1 -<br>Sensor 3         |
| 30 | O2SB1S4    | Oxygen Sensor Output Voltage<br>Bank 1 - Sensor 4 |
| 31 | SHRTFTB1S4 | Short Term Fuel Trim Bank 1 -<br>Sensor 4         |
| 32 | O2SB2S1    | Oxygen Sensor Output Voltage<br>Bank 2 - Sensor 1 |
| 33 | SHRTFTB2S1 | Short Term Fuel Trim Bank 2 -<br>Sensor 1         |
| 34 | O2SB2S2    | Oxygen Sensor Output Voltage<br>Bank 2 - Sensor 2 |
| 35 | SHRTFTB2S2 | Short Term Fuel Trim Bank 2 -<br>Sensor 2         |
| 36 | O2SB2S3    | Oxygen Sensor Output Voltage<br>Bank 2 - Sensor 3 |
| 37 | SHRTFTB2S3 | Short Term Fuel Trim Bank 2 -<br>Sensor 3         |
| 38 | O2SB2S4    | Oxygen Sensor Output Voltage<br>Bank 2 - Sensor 4 |
| 39 | SHRTFTB2S4 | Short Term Fuel Trim Bank 2 -<br>Sensor 4         |
| 40 | OBDSUP     | OBD requirements to which vehicle                 |

|    |            |                                                               |
|----|------------|---------------------------------------------------------------|
|    |            | is designed                                                   |
| 41 | PTO_STAT   | Power Take Off (PTO) Status                                   |
| 42 | RUNTM      | Time Since Engine Start                                       |
| 43 | MIL_DIST   | Distance Travelled While MIL is Activated                     |
| 44 | FRP        | Fuel Rail Pressure relative to manifold vacuum                |
| 45 | FRP        | Fuel Rail Pressure                                            |
| 46 | EQ_RATB1S1 | Equivalence Ratio (lambda) Bank 1 - Sensor 1 (wide range O2S) |
| 47 | O2SB1S1    | Oxygen Sensor Voltage Bank 1 - Sensor 1 (wide range O2S)      |
| 48 | EQ_RATB1S2 | Equivalence Ratio (lambda) Bank 1 - Sensor 2 (wide range O2S) |
| 49 | O2SB1S2    | Oxygen Sensor Voltage Bank 1 - Sensor 2 (wide range O2S)      |
| 50 | EQ_RATB1S3 | Equivalence Ratio (lambda) Bank 1 - Sensor 3 (wide range O2S) |
| 51 | O2SB1S3    | Oxygen Sensor Voltage Bank 1 - Sensor 3 (wide range O2S)      |
| 52 | EQ_RATB1S4 | Equivalence Ratio (lambda) Bank 1 - Sensor 4 (wide range O2S) |
| 53 | O2SB1S4    | Oxygen Sensor Voltage Bank 1 - Sensor 4 (wide range O2S)      |
| 54 | EQ_RATB2S1 | Equivalence Ratio (lambda) Bank 2 - Sensor 1 (wide range O2S) |
| 55 | O2SB2S1    | Oxygen Sensor Voltage Bank 2 - Sensor 1 (wide range O2S)      |
| 56 | EQ_RATB2S2 | Equivalence Ratio (lambda) Bank 2                             |

|    |            |                                                                 |
|----|------------|-----------------------------------------------------------------|
|    |            | - Sensor 2 (wide range O2S)                                     |
| 57 | O2SB2S2    | Oxygen Sensor Voltage Bank 2 - Sensor 2 (wide range O2S)        |
| 58 | EQ_RATB2S3 | Equivalence Ratio (lambda) Bank 2 - Sensor 3 (wide range O2S)   |
| 59 | O2SB2S3    | Oxygen Sensor Voltage Bank 2 - Sensor 3 (wide range O2S)        |
| 60 | EQ_RATB2S4 | Equivalence Ratio (lambda) Bank 2 - Sensor 4 (wide range O2S)   |
| 61 | O2SB2S4    | Oxygen Sensor Voltage Bank 2 - Sensor 4 (wide range O2S)        |
| 62 | EGR_PCT    | Commanded EGR                                                   |
| 63 | EGR_ERR    | EGR Error ((EGR actual -EGR commanded) / EGR commanded) * 100 % |
| 64 | EVAP_PCT   | Commanded Evaporative Purge                                     |
| 65 | FLI        | Fuel Level Input                                                |
| 66 | WARM_UPS   | Number of warm-ups since diagnostic trouble codes cleared       |
| 67 | CLR_DIST   | Distance since diagnostic trouble codes cleared                 |
| 68 | EVAP_VP    | Evap System Vapour Pressure                                     |
| 69 | BARO       | Barometric Pressure                                             |
| 70 | EQ_RATB1S1 | Equivalence Ratio (lambda) Bank 1 - Sensor 1 (wide range O2S)   |
| 71 | O2SB1S1    | Oxygen Sensor Voltage Bank 1 - Sensor 1 (wide range O2S)        |
| 72 | EQ_RATB1S2 | Equivalence Ratio (lambda) Bank 1 - Sensor 2 (wide range O2S)   |

|    |            |                                                                  |
|----|------------|------------------------------------------------------------------|
| 73 | O2SB1S2    | Oxygen Sensor Voltage Bank 1 -<br>Sensor 2 (wide range O2S)      |
| 74 | EQ_RATB1S3 | Equivalence Ratio (lambda) Bank 1<br>- Sensor 3 (wide range O2S) |
| 75 | O2SB1S3    | Oxygen Sensor Voltage Bank 1 -<br>Sensor 3 (wide range O2S)      |
| 76 | EQ_RATB1S4 | Equivalence Ratio (lambda) Bank 1<br>- Sensor 4 (wide range O2S) |
| 77 | O2SB1S4    | Oxygen Sensor Voltage Bank 1 -<br>Sensor 4 (wide range O2S)      |
| 78 | EQ_RATB2S1 | Equivalence Ratio (lambda) Bank 2<br>- Sensor 1 (wide range O2S) |
| 79 | O2SB2S1    | Oxygen Sensor Voltage Bank 2 -<br>Sensor 1 (wide range O2S)      |
| 80 | EQ_RATB2S2 | Equivalence Ratio (lambda) Bank 2<br>- Sensor 2 (wide range O2S) |
| 81 | O2SB2S2    | Oxygen Sensor Voltage Bank 2 -<br>Sensor 2 (wide range O2S)      |
| 82 | EQ_RATB2S3 | Equivalence Ratio (lambda) Bank 2<br>- Sensor 3 (wide range O2S) |
| 83 | O2SB2S3    | Oxygen Sensor Voltage Bank 2 -<br>Sensor 3 (wide range O2S)      |
| 84 | EQ_RATB2S4 | Equivalence Ratio (lambda) Bank 2<br>- Sensor 4 (wide range O2S) |
| 85 | O2SB2S4    | Oxygen Sensor Voltage Bank 2 -<br>Sensor 4 (wide range O2S)      |
| 86 | CATEMP11   | Catalyst Temperature Bank<br>1+Sensor 1                          |
| 87 | CATEMP21   | Catalyst Temperature Bank                                        |

|     |          |                                                      |
|-----|----------|------------------------------------------------------|
|     |          | 2+Sensor 1                                           |
| 88  | CATEMP12 | Catalyst Temperature Bank 1+Sensor 2                 |
| 89  | CATEMP22 | Catalyst Temperature Bank 2+Sensor 2                 |
| 90  | VPWR     | Control module voltage                               |
| 91  | LOAD_ABS | Absolute Load Value                                  |
| 92  | EQ_RAT   | Commanded Equivalence Ratio                          |
| 93  | TP_R     | Relative Throttle Position                           |
| 94  | AAT      | Ambient air temperature (same scaling as IAT - \$0F) |
| 95  | TP_B     | Absolute Throttle Position B                         |
| 96  | TP_C     | Absolute Throttle Position C                         |
| 97  | APP_D    | Accelerator Pedal Position D                         |
| 98  | APP_E    | Accelerator Pedal Position E                         |
| 99  | APP_F    | Accelerator Pedal Position F                         |
| 100 | TAC_PCT  | Commanded Throttle Actuator Control                  |
| 101 | MIL_TIME | Time run by the engine while MIL is activated        |
| 102 | CLR_TIME | Time since diagnostic trouble codes cleared          |
| 103 | FUEL_TYP | Type of fuel currently being utilized by the vehicle |
| 104 | ALCH_PCT | Alcohol Fuel Percentage                              |
| 105 | EVAP_VPA | Absolute Evap System Vapour Pressure                 |
| 106 | EVAP_VP  | Evap System Vapour Pressure                          |

|     |          |                                                      |
|-----|----------|------------------------------------------------------|
| 107 | STSO2FT1 | Short Term Secondary O2 Sensor<br>Fuel Trim - Bank 1 |
| 108 | STSO2FT3 | Short Term Secondary O2 Sensor<br>Fuel Trim - Bank 3 |
| 109 | LGSO2FT1 | Long Term Secondary O2 Sensor<br>Fuel Trim - Bank 1  |
| 110 | LGSO2FT3 | Long Term Secondary O2 Sensor<br>Fuel Trim - Bank 3  |
| 111 | STSO2FT2 | Short Term Secondary O2 Sensor<br>Fuel Trim - Bank 2 |
| 112 | STSO2FT4 | Short Term Secondary O2 Sensor<br>Fuel Trim - Bank 4 |
| 113 | LGSO2FT2 | Long Term Secondary O2 Sensor<br>Fuel Trim - Bank 2  |
| 114 | LGSO2FT4 | Long Term Secondary O2 Sensor<br>Fuel Trim - Bank 4  |
| 115 | FRP      | Fuel Rail Pressure (absolute)                        |
| 116 | APP_R    | Relative Accelerator Pedal Position                  |
| 117 | MIL      | Malfunction Indicator Lamp (MIL)<br>Status           |
| 118 | MIS_SUP  | Misfire monitoring supported                         |
| 119 | FUEL_SUP | Fuel system monitoring supported                     |
| 120 | CCM_SUP  | Comprehensive component<br>monitoring supported      |
| 121 | MIS_RDY  | Misfire monitoring ready                             |
| 122 | FUEL_RDY | Fuel system monitoring ready                         |
| 123 | CCM_RDY  | Comprehensive component<br>monitoring ready          |

|     |          |                                             |
|-----|----------|---------------------------------------------|
| 124 | CAT_SUP  | Catalyst monitoring supported               |
| 125 | HCAT_SUP | Heated catalyst monitoring supported        |
| 126 | EVAP_SUP | Evaporative system monitoring supported     |
| 127 | AIR_SUP  | Secondary air system monitoring supported   |
| 128 | ACRF_SUP | A/C system refrigerant monitoring supported |
| 129 | O2S_SUP  | Oxygen sensor monitoring supported          |
| 130 | HTR_SUP  | Oxygen sensor heater monitoring supported   |
| 131 | EGR_SUP  | EGR system monitoring supported             |
| 132 | CAT_RDY  | Catalyst monitoring ready                   |
| 133 | HCAT_RDY | Heated catalyst monitoring ready            |
| 134 | EVAP_RDY | Evaporative system monitoring ready         |
| 135 | AIR_RDY  | Secondary air system monitoring ready       |
| 136 | ACRF_RDY | A/C system refrigerant monitoring ready     |
| 137 | O2S_RDY  | Oxygen sensor monitoring ready              |
| 138 | HTR_RDY  | Oxygen sensor heater monitoring ready       |
| 139 | EGR_RDY  | EGR system monitoring ready                 |
| 140 | MIS_ENA  | Misfire monitoring enabled                  |
| 141 | FUEL_ENA | Fuel system monitoring enabled              |

|     |          |                                              |
|-----|----------|----------------------------------------------|
| 142 | CCM_ENA  | Comprehensive component monitoring enabled   |
| 143 | MIS_CMPL | Misfire monitoring completed                 |
| 144 | FUELCMPL | Fuel system monitoring completed             |
| 145 | CCM_CMPL | Comprehensive component monitoring completed |
| 146 | CAT_ENA  | Catalyst monitoring                          |
| 147 | HCAT_ENA | Heated catalyst monitoring                   |
| 148 | EVAP_ENA | Evaporative system monitoring                |
| 149 | AIR_ENA  | Secondary air system monitoring              |
| 150 | ACRF_ENA | A/C system refrigerant monitoring            |
| 151 | O2S_ENA  | Oxygen sensor monitoring                     |
| 152 | HTR_ENA  | Oxygen sensor heater monitoring              |
| 153 | EGR_ENA  | EGR system monitoring                        |
| 154 | CAT_CMPL | Catalyst monitoring completed                |
| 155 | HCATCMPL | Heated catalyst monitoring completed         |
| 156 | EVAPCMPL | Evaporative system monitoring completed      |
| 157 | AIR_CMPL | Secondary air system monitoring completed    |
| 158 | ACRFCMPL | A/C system refrigerant monitoring completed  |
| 159 | O2S_CMPL | Oxygen sensor monitoring completed           |
| 160 | HTR_CMPL | Oxygen sensor heater monitoring completed    |
| 161 | EGR_CMPL | EGR system monitoring completed              |

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## Appendix 2 In-use Performance Tracking Data

| Abbreviation | Full Name                                           | Definitions                                                                                                                                                                    |
|--------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OBDCOND      | <b>OBD Monitoring Conditions Encountered Counts</b> | OBD Monitoring Conditions Encountered Counts displays the number of times that the vehicle has been operated in the specified OBD monitoring conditions (general denominator). |
| IGNCNTR      | <b>Ignition Counter</b>                             | Ignition Counter displays the count of the number of times that the engine has been started.                                                                                   |

|          |                                                                              |                                                                                                                                                                                                             |
|----------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CATCOMP1 | <b>Catalyst<br/>Monitor<br/>Completion<br/>Counts Bank 1</b>                 | Catalyst Monitor<br>Completion Counts Bank 1<br>displays the number of<br>times that all conditions<br>necessary to detect a<br>catalyst system bank 1<br>malfunction have been<br>encountered (numerator). |
| CATCOND1 | <b>Catalyst<br/>Monitor<br/>Conditions<br/>Encountered<br/>Counts Bank 1</b> | Catalyst Monitor<br>Conditions Encountered<br>Counts Bank 1 displays the<br>number of times that the<br>vehicle has been operated<br>in the specified catalyst<br>monitoring conditions<br>(denominator).   |
| CATCOMP2 | <b>Catalyst<br/>Monitor<br/>Completion<br/>Counts Bank 2</b>                 | Catalyst Monitor<br>Completion Counts Bank 2<br>displays the number of<br>time that all conditions<br>necessary to detect a<br>catalyst system bank 2<br>malfunction have been<br>encountered (numerator).  |
| CATCOND2 | <b>Catalyst<br/>Monitor<br/>Conditions<br/>Encountered<br/>Counts Bank 2</b> | Catalyst Monitor<br>Conditions Encountered<br>Counts Bank 2 displays the<br>number of times that the<br>vehicle has been operated                                                                           |

|          |                                                               |                                                                                                                                                                                            |
|----------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                               | in the specified catalyst monitoring conditions (denominator).                                                                                                                             |
| O2SCOMP1 | <b>O2 Sensor Monitor Completion Counts Bank 1</b>             | O2 Sensor Monitor Completion Counts Bank 1 displays the number of time that all conditions necessary to detect an oxygen sensor bank 1 malfunction have been encountered (numerator).      |
| O2SCOND1 | <b>O2 Sensor Monitor Conditions Encountered Counts Bank 1</b> | O2 Sensor Monitor Conditions Encountered Counts Bank 1 displays the number of times that the vehicle has been operated in the specified oxygen sensor monitoring conditions (denominator). |
| O2SCOMP2 | <b>O2 Sensor Monitor Completion Counts Bank 2</b>             | O2 Sensor Monitor Completion Counts Bank 2 displays the number of time that all conditions necessary to detect an oxygen sensor bank 2 malfunction have been encountered (numerator).      |

|          |                                                                |                                                                                                                                                                                            |
|----------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| O2SCOND2 | <b>O2 Sensor Monitor Conditions Encountered Counts Bank 2</b>  | O2 Sensor Monitor Conditions Encountered Counts Bank 2 displays the number of times that the vehicle has been operated in the specified oxygen sensor monitoring conditions (denominator). |
| EGRCOMP  | <b>EGR Monitor Completion Condition Counts</b>                 | EGR Monitor Completion Condition Counts displays the number of time that all conditions necessary to detect an EGR system malfunction have been encountered (numerator).                   |
| EGRCOND  | <b>EGR Monitor Conditions Encountered Counts</b>               | EGR Monitor Conditions Encountered Counts displays the number of times that the vehicle has been operated in the specified EGR system monitoring conditions (denominator).                 |
| AIRCOMP  | <b>AIR Monitor Completion Condition Counts (Secondary Air)</b> | AIR Monitor Completion Condition Counts (Secondary Air) displays the number of time that all conditions necessary to detect an AIR system                                                  |

|          |                                                                  |                                                                                                                                                                                            |
|----------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                                  | malfunction have been encountered (numerator).                                                                                                                                             |
| AIRCOND  | <b>AIR Monitor Conditions Encountered Counts (Secondary Air)</b> | AIR Monitor Conditions Encountered Counts (Secondary Air) displays the number of times that the vehicle has been operated in the specified AIR system monitoring conditions (denominator). |
| EVAPCOMP | <b>EVAP Monitor Completion Condition Counts</b>                  | EVAP Monitor Completion Condition Counts displays the number of time that all conditions necessary to detect a 0.020" EVAP system leak malfunction have been encountered (numerator).      |
| EVAPCOND | <b>EVAP Monitor Conditions Encountered Counts</b>                | EVAP Monitor Conditions Encountered Counts displays the number of times that the vehicle has been operated in the specified EVAP system leak malfunction monitoring                        |

|  |  |                           |
|--|--|---------------------------|
|  |  | conditions (denominator). |
|--|--|---------------------------|

### Appendix 3    I/M Readiness List

| Number | Abbreviation | Full Name                     |
|--------|--------------|-------------------------------|
| 1      | CAT          | Catalyst monitoring           |
| 2      | HCAT         | Heated catalyst monitoring    |
| 3      | EVAP         | Evaporative system monitoring |

|    |      |                                    |
|----|------|------------------------------------|
| 4  | AIR  | Secondary air system monitoring    |
| 5  | ACRF | A/C system refrigerant monitoring  |
| 6  | O2S  | Oxygen sensor monitoring           |
| 7  | HTR  | Oxygen sensor heater monitoring    |
| 8  | EGR  | EGR system monitoring              |
| 9  | MIS  | Misfire monitoring                 |
| 10 | FUEL | Fuel system monitoring             |
| 11 | CCM  | Comprehensive component monitoring |

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# Appendix 4    Vehicle Manufacturer

| Number | Vehicle Manufacturer |
|--------|----------------------|
| 1      | generic              |
| 2      | Acura                |
| 3      | Alfa Romeo           |
| 4      | Aston.Mt             |
| 5      | Audi                 |
| 6      | Bentley              |
| 7      | BMW                  |
| 8      | Buick                |
| 9      | Cadillac             |
| 10     | Chevrolet            |
| 11     | Chrysler             |

|    |            |
|----|------------|
| 12 | Citroen    |
| 13 | Daewoo     |
| 14 | Daihatsu   |
| 15 | Dodge      |
| 16 | Ferrari    |
| 17 | Fiat       |
| 18 | Ford       |
| 19 | GM         |
| 20 | GEO        |
| 21 | GMC        |
| 22 | Honda      |
| 23 | HYundai    |
| 24 | Infiniti   |
| 25 | Isuzu      |
| 26 | Iveco      |
| 27 | Jaguar     |
| 28 | Jeep       |
| 29 | Kia        |
| 30 | Lambor     |
| 31 | Lancia     |
| 32 | Land Rover |
| 33 | Lanos      |
| 34 | Leganza    |
| 35 | Lexus      |
| 36 | Lincoln    |
| 37 | Lotus      |
| 38 | MAN        |
| 39 | Maserati   |

|    |            |
|----|------------|
| 40 | Mazada     |
| 41 | MB         |
| 42 | Mercury    |
| 43 | MG         |
| 44 | Mini       |
| 45 | Mitsubishi |
| 46 | Nissan     |
| 47 | Nubira     |
| 48 | Oldsmobile |
| 49 | Opel       |
| 50 | Peugeot    |
| 51 | Pontiac    |
| 52 | Porsche    |
| 53 | Proton     |
| 54 | Renault    |
| 55 | Roll Royce |
| 56 | Rover      |
| 57 | Saab       |
| 58 | Saturn     |
| 59 | Scania     |
| 60 | Seat       |
| 61 | Skodai     |
| 62 | Smart      |
| 63 | Ssangyong  |
| 64 | Subaru     |
| 65 | Suzuki     |
| 66 | Toyota     |
| 67 | Vauxhall   |

|    |            |
|----|------------|
| 68 | Volvo      |
| 69 | Volkswagen |

## Appendix 5 Special abbreviation of MB-880

| NO. | Abbreviation           | Full Name                    |
|-----|------------------------|------------------------------|
| 1.  | OBD                    | On board diagnostic          |
| 2.  | N/A                    | Not available not applicable |
| 3.  | Vehicle M.F.           | Vehicle Manufacture          |
| 4.  | TID                    | Test Identifier              |
| 5.  | PID                    | Parameter Identifier         |
| 6.  | Mon.                   | Monitor                      |
| 7.  | Vehicle Info.          | Vehicle Information          |
| 8.  | DTC                    | Diagnostic trouble codes     |
| 9.  | ECU                    | Electronic control unit      |
| 10. | CID (On Board Monitor) | Calibration Identifier       |

|     |                                   |                                                          |
|-----|-----------------------------------|----------------------------------------------------------|
| 11. | MEAS                              | Measured Value                                           |
| 12. | MIN                               | Minimum                                                  |
| 13. | MAX                               | Maximum                                                  |
| 14. | O2                                | Oxygen                                                   |
| 15. | VIN                               | Vehicle ID Number                                        |
| 16. | CVN                               | Calibration Verification<br>Numbers                      |
| 17. | Perf. Track                       | In-use Performance<br>Tracking                           |
| 18. | O2 Bank <b>X</b> -Sensor <b>Y</b> | Oxygen Sensor Monitor<br>Bank <b>X</b> - Sensor <b>Y</b> |
| 19. | Catalyst Mon. B <b>X</b>          | Catalyst Monitor Bank <b>X</b>                           |

## 7. Warranty and Service

### 7.1 Limited One Year Warranty

**MB-880** warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one year from the date of the original purchase, subject to the following terms and conditions:

- 1) The sole responsibility of **MB-880** under the Warranty is limited to either the repair or, at the option of **MB-880**, replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.

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- 2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
  - 3) **MB-880** shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
  - 4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. **MB-880** reserves the right to make changes at any time without notice.

## 7.2 Service Procedures

If you have any questions, please contact your local store, distributor or visit our website at <http://www.cbtdbd.com>  
If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.